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AMERICAN VETERINARY REVIEW,

MAY, 1878.

ORIGINAL ARTICLES.

ARTICLE I.

A CONTRIBUTION TO THE STUDY OF HOG CHOLERA.

By N. S. Townshend, M.D.,

Professor of Agriculture in the Ohio Agricultural and Mechanical College. *Read before the Columbus Academy of Medicine, November 23d, 1877.**

Mr. President:—An invitation from the Columbus Academy of Medicine to read a paper on the disease familiarly known as Hog Cholera, should be accepted as proof that physicians of this city are not indifferent to the malady which so seriously affects the prosperity of the surrounding country. It also affords evidence that physicians are not wanting in a humane desire to alleviate the sufferings of the creatures we subordinate to our pleasure or profit. It may be presumed that the members of the Academy are aware of the resemblances between some animal diseases and those which affect mankind; and of the facilities which animals afford for the study of such diseases. The communicability of some diseases from animals to men is equally well-known to you, as well as the influence which the diseases of milk and flesh-producing animals may have upon the health of the people. Permit me to add, that in a country where well-educated veterinarians are very scarce, there would seem to be a necessity that physicians should care not only for the families of their patrons, but also for their four-footed dependents.

*Printed in the *Ohio Medical and Surgical Journal.*

I regret that what I have to offer this evening is only "A Contribution to the Study of Hog Cholera," instead of an exhaustive treatment of the subject. My opportunities for investigation have been limited, and have occupied only such time as could be spared from the pressure of other duties. I have observed somewhat hastily several affected herds of swine, and examined the bodies of some fifty, supposed to have been subjects of this disease, several of which were killed in order to determine what structural changes were discoverable in the earlier stages. I have not had sufficient opportunity to test the comparative efficacy of different modes of treatment.

History.—So far as I am informed, a serious and often fatal disease of swine, known as Hog Cholera, has been more or less prevalent in Ohio for twenty years. Whether this disease is identical with any disease of swine of former periods or of other countries, is a question to which it may be presumed that sufficient attention has not been given, inasmuch as widely diverse opinions are entertained. Of late years the disease has presented itself in almost every State of the Union; but especially in States west and south. The report of the Department of Agriculture for 1876, shows a loss in the State of Missouri of 30 per cent. of all the swine in the State; in the States of Illinois and Kentucky the loss was more than 20 per cent.; in Indiana, 18 per cent.; in Georgia, 10 per cent.; and in Ohio, 7 per cent. The aggregate loss of the whole country was twenty millions of dollars.

Symptoms.—The first stage of the disease is congestive; the animal crawls under the litter, or huddles close to his companions, refuses solid food and appears sluggish; this stage may last a few hours, or it may continue for a day or two. If the animal does not die apoplectic in the congestive state, reaction follows; then there is thirst, feverishness, and redness of the skin, especially where the hairy covering is least abundant. In some animals this redness is diffused, but more frequently it appears in spots, from which the cuticle is sometimes raised in small blisters; the conjunctiva is reddened and the mouth is dry. The pulse is from 100 to 120, and the temperature from 104° to 106°; and in one instance I found it as high as 111°. Soon the abdomen becomes

tumid and tender, the animal expresses great pain when compelled to move, and prefers to lie prone upon the belly. There is often great difficulty of breathing, which is more or less spasmodic, and attended with severe cough; not unfrequently there is hemorrhage from the nostrils and swelling of the parotid glands. Through the febrile, or acute inflammatory stage, there is constipation, which is afterwards followed by diarrhœa; at first the evacuations may be destitute of bile, then bilious, and very soon dark colored, or blood-stained and very fœtid. Finally, locomotion becomes difficult, unsteady, and perhaps spasmodic, or the posterior extremities are entirely paralyzed. Death may occur within a few hours, and during the congestive stage as already stated; it may occur in a few days from the effect of inflammation, or in one or two weeks from exhaustion, from peritonitis, or from effusion.

Post-mortem.—On examination after death, the cavity of the abdomen is often found to contain a few ounces of serum, and sometimes fibrinous exudations. The liver is not materially changed in size or texture, but often has a yellowish or ashy color; occasionally it was found greatly engorged. The spleen was enlarged in nearly half the cases examined, sometimes to a great extent, and so disorganized that when the capsule was ruptured the grumous contents would escape. This disorganized condition of the spleen, as might be expected, was greatest when the blood showed most change.

The stomach often contained undigested food, the mucous membrane was usually congested, but rarely showed as decided evidence of inflammation as other portions of the alimentary canal. The small intestines, on their external surface, presented patches of deep discoloration; occasionally they would be glued together by limphy exudations. The mucous lining showed general congestion, and inflammation in patches; sometimes tumefaction and exudation would be almost confined to the aggregate and solitary glands, which in some cases were covered by dark colored crusts, or where these had sloughed off, patches of ulceration were seen. Frequently, however, the inflammation and ulceration affected glandular and other portions indifferently; or the whole

inner surface of the bowel would be inflamed for several inches in extent. In the large intestines the mischief was still more apparent, the cæcum often contained a multitude of inflamed and elevated spots, or in their place ulcerations as large as the impressions made by the ends of one's fingers on a dusty table, and as close as the fingers held together could make them. The colon usually presented ulcerations similar to those of the cæcum; its contents were small masses of hardened fœces dark colored or blood-stained; and not unfrequently dark fluid blood in considerable quantity. Sometimes portions of the colon were almost gangrenous. In a few cases the intestine had been perforated by ulceration, and peritonitis had resulted. The mesenteric glands were almost always enlarged; the kidneys were congested, the bladder contained healthy-looking urine, or it was tinged with bile or blood.

The lungs were always congested and often inflamed, or impervious to air from serous infiltrations; the air passages were filled with frothy mucous, the trachea and larynx were sometimes found in a state bordering upon gangrene. In a few instances, where the cough had been an unusually marked symptom, the smaller air-passages were crowded with nematoid, or thread-like worms, the *Strongylus paradoxus*; these cases were so few, that the presence of the lung-worms can only be regarded as an accidental complication.

Effusion within the pleura, or pericardium, was sometimes seen; the blood in the heart cavities was clotted, but the clots were soft and in general the blood elsewhere was fluid. On examination of the blood with the microscope, the blood globules appeared shrunken and their margins irregular. In the blood drawn from some animals that were killed, bacteria were seen with a power of from eighty to one hundred diameters. The *Bacillus anthracis*, which is said to be pathognomonic of anthrax fever, was looked for but not found. The brain and spinal marrow were repeatedly examined, but without disclosing any marked lesion.

Pathology.—That this disease corresponds in no degree with Asiatic cholera of the human subject, is evident on slight exami-

nation. In Hog Cholera, constipation is much more common at the outset than diarrhœa, and afterwards, when diarrhœa is present, the evacuations are unlike the characteristic discharges of Asiatic cholera. That the disease is an idiopathic fever of typhoid type, substantially like typhoid fever of the human subject, would seem to be proved by the congestion, inflammation, and ulceration so generally found in the intestinal canal, by the frequency of hemorrhages from the bowels, and the frequent enlargment of the mesenteric glands and spleen; also by the petechial eruption over the surface, and from its greater tendency to attack young animals. On the other hand, Hog Cholera resembles what is known in Europe as anthrax fever, the symptoms in the living animal being almost identical, and the post-mortem appearances not greatly dissimilar. Hog Cholera differs from what are styled anthracoid diseases by its much less malignity; and, although in my opinion it is contagious so far as to be co·.municated in some way from diseased to healthy swine, it does not appear to be transmissable to other species of animals, nor to man, while the anthrax fever of Europe passes readily from one kind of stock to another, and is often fatally communicated to mankind. The blood of animals suffering from anthrax fever, it is said, always contains the *Bacillus anthracis.* So far as my examinations have gone or my information extends, the presence of *Bacillus* has not been demonstrated in Hog Cholera. I should add, however, that many European veterinarians regard what is styled anthrax fever of swine as nothing more nor less than typhoid fever. By some persons Hog Cholera is regarded as typhus, rather than typhoid fever; but the frequency of intestinal lesions and severe suffering in Hog Cholera, are adverse to such a conclusion.

Cause.—First, contagion. It seems to be established that this disease has been communicated to healthy swine by bringing them in contact with the affected, or by confining them in cars, pens, or yards, that diseased animals have recently occupied. It appears, also, that the contagion may, in some way, be conveyed for the distance of half a mile or more; also, that animals kept in the most cleanly and thrifty condition are not proof

against the contagion. If the disease is typhoid fever, we should expect to find that contaminated water is a principal medium through which the disease germs pass from one animal to another. How far exemption from attack may be secured, when the food and drink are free from all possible contamination, has not, so far as I know, been determined. Second.—It seems, also, to be established that healthy hogs, if subjected to hard driving for considerable distances in hot weather, or if crowded together in large numbers, may develop the disease *de novo;* and, possibly, other conditions and circumstances not yet understood, may tend to a similar result.

Treatment.—With this malady it is especially true that prevention is better than cure; the attempt to medicate a case of Hog Cholera, when, by so doing, there might be danger of exposing other animals, is the reverse of economy. When it is certain that an animal has this disease, it should be killed immediately and buried, and the whole premises thoroughly disinfected. For this purpose, all litter and rubbish should be burned, and the pens, or styes, fumigated with burning sulphur. Hogs that have been in contact with sick ones, may be expected to show symptoms of the disease, after thirteen or fourteen days, at furthest, if the weather be cold; if the weather should be very hot, the period of incubation may be shortened to three or four days. During the period of incubation, sulphur should daily be given with the food, or the hyposulphite of soda may be used instead. This is a cheap drug, and a sufficient quantity will be taken, without objection, if dissolved in the drink. Some farmers think they have kept off the disease, after exposure, by acidulating all the food slightly with sulphuric acid; others believe that the sulphate of iron is equally effectual. The carbolic, cresylic, and salycilic acids may prove better disinfectants than those already named; or, possibly, change of quarters may be more benefical than any plan of medication. If an attack of the disease cannot be prevented, and loss of appetite, with nausea and constipation, are noticed, then laxatives are clearly indicated, and sulphur enough to act may easily be given with the food or drink; or castor oil, with spirits of turpentine, may be administered to an animal that

is conveniently small, and repeated, from time to time, so long as enteric inflammation continues. Corn, boiled in weak lye from wood ashes, is relied upon by some, while others place soft soap where the sick animals will take it, instinctively, to relieve the acidity of the stomach and bowels, from which all seem to suffer. After the disease has run its course, and left the animal without appetite, and with an exhausting and fœtid diarrhœa, the sulphate of iron answers a good purpose, combining tonic with astringent effects. How far such treatment would prove effectual, if intelligently followed, I am not prepared to say. I have several times been thanked for suggesting such a course by owners who believed it had been of great service.

There are many patent remedies for this disease before the public; they are all published in the Official Gazette of the Patent Office. Some of these remedies contain valuable articles, though not unfrequently the drugs combined are incompatible. A receipt to prevent, and to cure, and to be given in all stages and conditions, you would think more likely to do harm than good. Certainly you would have little faith in any specific that might be offered for the prevention and cure of typhoid fever of the human subject, although you would expect to see a large majority of your patients thus afflicted recover under treatment properly adapted to their condition.

Mr. President, I am fully aware that the paper I have just read is very unsatisfactory; there are but few points upon which I have been able to speak with absolute certainty. My object will be attained if, in consequence of any discussion that may follow, this disease should hereafter be better understood and more successfully treated.

VETERINARY REFORM.

By N. H. Paaren, V.S., Chicago, Ill.

Read before the National Agricultural Congress in Washington.

It is not alone to the cultivation of the soil that agriculture is required to devote attention; it has also to deal with flocks and

herds, with the preservation of the health of the animals of the farm, and when disease overtakes them, their restoration to health by proper means of treatment. The relation between agriculture and veterinary art is close and inseparable,—their disconnection being alike injurious to both.

There is no subject of greater importance to the live stock interest of this country, which is, indeed, one of the leading interests, than the veterinary science. Every year diseases multiply among our live stock. Besides the ordinary and generally known complaints of cattle, the middle and western States especially have been visited by the Texan fever and the so-called hog cholera, and the damages resulting from the ravages of these diseases have been enormous. While all Europe is alive to the importance of being prepared to meet any outbreaks of disease among domestic animals, we Americans, to the astonishment of other civilized nations, and greatly to our shame, be it said, have neglected to take steps towards eradicating the prevailing destructive diseases among swine, almost amounting to a plague in its effects, by which the swine crop has been decimated for years, and caused an annual loss of millions of dollars to the farming community. Would such a state of affairs be tolerated, even for one year, by any other civilized nation?

It may be asked, what are our means of successfully contending against the diseases that are almost constantly raging, and those more dreadful maladies that threaten our flocks and herds? We are almost without any! Has our government done anything in the way of aiding or encouraging instruction in the only department of knowledge that can be of service in warding off or curing the diseases of domestic animals? Absolutely nothing! While the ranks of every other profession are crowded, there is a great scarcity of persons who have the requisite skill and knowledge to treat a sick domestic animal of any kind. Nowhere do ignorance and superstitition so show themselves as in the remedies that are administered to sick animals. No torture was ever so complete as that inflicted on sick domestic animals by the ignorant quacks who pretend to know how to doctor them. Intelligent humanity revolts at the way disease and lameness are treated almost every-

where in our land; and the future historian will allude to some of the practices of our horse doctors to prove that in the year of 1878 we had not yet entirely emerged from the darkness of barbarism, inasmuch as such a state of affairs was sanctioned, nay, indirectly aided, by being tolerated, by what is called the best government the sun ever shone upon.

The status of veterinary institutions in Europe, and the esteem in which the science and art of preventing and curing diseases of domestic animals is held by all the leading nations of Europe, is an example worthy of following by us Americans. No course would be regarded by the people with more favor, or of which there is greater need. We have plently of lawyers, physicians and ministers, but the paucity of efficient doctors of domestic animals is remarkable when we think of the urgent demand for them and the good they might accomplish.

The prevention of spreading disease among domestic animals should be regarded as a political question, as it involves more or less the well-being of the whole community. The extension of diseases among live stock is not only a loss to the owners thereof, but also to the general public. Besides the consequent diminution in the food supply, the people also incur the risk of obtaining it of an inferior if not injurious quality.

Losses from diseases have, during late years, been heavy, particularly in the middle and western States. A large proportion of the losses are the result of downright neglect and bad management. Diseases, obscurely named, such as "distemper," "murrain," "hollow horn," etc., are causing considerable losses in all parts of the country. Scab among sheep appears to be spreading uninterruptedly on no small scale. Of all domestic animals, the fatality is greatest among swine. Almost entire stocks of individual farmers have been swept away in some counties of Illinois from the so-called hog cholera. From the crop report of the Illinois Department of Agriculture, for 1877, it appears that the number of swine lost by disease is reported at 358,844 head, valued at $1,583,415, which is $7,403 more than the amount lost during 1876. Evidently these figures do not cover the actual losses; for we are informed that correspondents to the Depart-

ment in 1877 confined their estimates of loss by disease to the hogs assessed in May, 1877, which does not include a large proportion of the spring pigs, that enter very largely into the aggregate loss sustained each year, and which are not included by many assessors. The annual loss to the State is very difficult to estimate, or even approximate, without official enumeration, as many correspondents give the average weight per head of dead hogs, and overlook the loss of flesh sustained by animals affected from the time the disease is contracted until death, which loss in weight in many cases is over 50 per cent.

The contagions pleuro-pneumonia of cattle is stealthily, slowly and almost uninterruptedly gaining ground in the eastern States. If it were not for the fact that the current of trade in cattle on this continent is almost exclusively eastward, this disease would long ago have found its way to the Pacific coast. Nevertheless it would be folly to expect immunity from this plague in the west; for at no distant day will its presence here be a settled fact! And what should prevent it? No measures, legal or otherwise, exist for the prevention of its spread. The farther this plague extends westward, the less will its progress be interfered with, because the almost entire absence of qualified veterinarians leaves the farmers and stock owners in ignorance of the presence of the disease among their stock, until serious and widespread losses will have been sustained; and when the local or state authorities at last shall be compelled to take the matter under consideration, it will have spread far beyond our control. The extension westward of the contagious pleuro-pneumonia will most likely be effected by means of trade and traffic only. The disease affects blooded cattle as well as common stock. If common stock is not shipped westward, blooded stock is, and by this means it may be brought right in among cattle ranges in the territories. The cattle trucks may be another source of its spread westward. We all know that the use of these are not confined to the length of a track of any of the eastern railroad corporations, but traverse the net-work of tracks extending over the whole length and breadth of the land. Contemplate for one moment the result, when once this plague gets a foothold on the large cattle

ranges of the plains. Our half wild cattle on the ranges will communicate this disease to the buffaloes, and these again will cause its spread from north to south over all the territories, without limitation or control. In regard to its westward course, we have reason to believe that this disease is already now located in some parts of Indiana. England has, up to the present time, lost over 10,000,000 head of cattle from the contagious pleuro-pneumonia alone, representing a cash value of about £100,000,000. The array of figures relating to the mortality among live stock, as presented by the various State Agricultural Departments, clearly indicates a necessity for the inauguration of prompt measures, and the establishment of means whereby these ravages by disease can be brought under control. The statistical reports of the Agricultural Department of the national government, give but a slender idea of the devastation, misery, and loss that is due to the existing ignorance, apathy and neglect of veterinary sanitary science. It is no exaggeration to say, that it requires several times the figures given by the Agricultural Department, to foot up the actual losses, which the prevailing diseases among live stock continually entail upon the industry of the country.

The immense losses by disease among live stock must to a great extent, be accounted for in the absolute scarcity of competent veterinarians—men who have been thoroughly and scientifically educated in this branch of medical science. That the great multitude of intelligent farmers and live stock owners of America should be obliged to contend with quacks and charlatans, while all other civilized nations (some of them as far back as a hundred years ago) have been provided by their governments with amply endowed veterinary colleges, is beyond all sound reasoning—is, in fact, nothing less than a national disgrace, and justly merits the derision of other nations.

In view of the vast interests involved, and the fearful tribute which is annually extracted from the public by the ravages of epidemic and other diseases among live stock, it is a matter of surprise that no intelligent efforts have been made in the way of prevention. The national government has hitherto confined itself to the gathering of statistics, and the apparent exactness of these

provokes the impression, that the Agricultural Department takes particular pleasure in holding up before the gaze of the disgusted sufferers the multiplicity and greatness of their losses. As an expression of a faint feeling of sympathy, the report is flavored with a sprinkling of the kind of abominations which we are wont to see paraded in the agricultural press as remarkable specimens of sure cures, propounded by traveling "hoss doctors," cow leeches, and town gossipers.

It is but reasonable to believe that a competent head at the Agricultural Bureau, having a due regard for the true interests of the agricultural classes of the United States, in consideration of the vast amounts of capital invested in live stock, and the many and heavy losses to which the owners are constantly and almost helplessly subjected, that such a functionary would long ago have taken steps towards ameliorating these conditions, and thus lessen the losses of this, the largest class of producers in the land. The inactivity in this direction displayed by this Department, warrants a belief that the matters under consideration will be apt to remain in *status quo*, unless the National Agricultural Congress, now in session, embraces the opportunity of its meeting to frame an appeal direct to the National Congress. Not only the press, but the whole agricultural population, would second such a motion.

I have, on former occasions, through the agricultural press, and otherwise, called attention to the disastrous consequences that would be certain to follow on the appearance of a pestilence, like the rinderpest, from the want of a sufficiently numerous, able and scientific body of veterinarians in America. Judging from the spread of epidemics, their peculiar tendency to migrate from east towards west, over the whole globe, it seems almost certain that some day this country will be visited by such a plague, that will carry havoc among our numerous herds. Our loose and insufficient government regulations, concerning the inspection of live stock, etc., at the various places of embarkation in Europe (regulations which would certainly not be sanctioned by any other civilized government), sufficiently indicate the facility with which such a plague, when once here, would be apt to devastate the vast herds of our broad land. With the example before us of the efficient

measures in force in all the European countries, it is astonishing to witness the lethargy of our government, its utter disregard of public interests in this direction, and the general outcry from the agricultural population. By neglecting to provide for the present requirements as indicated in this paper, as well as for future very possible contingencies, the national government does assume a fearful responsibility.

If veterinary science could be placed on a footing in the United States level with that on which it stands in Europe, and receive the same encouragement and degree of patronage from our government, as it receives there, the consequent benefit to this country would be beyond calculation. With veterinary science better cultivated, and the profession placed on a better footing, and becoming more numerous, among the consequences would be a more intelligent management of live stock, and rational treatment of diseases, which would save many millions of dollars annually to the country. A radical change in existing affairs is imperative, and the unquestionable importance of this matter warrants a demand upon the national government for immediate action, on behalf of the live stock interests of the United States.

With a view of furthering the interests of farmers and live stock owners of the United States, I would respectfully suggest that, among the resolutions adopted at the present meeting of the National Agricultural Congress, there shall be embodied a call upon the national government for immediate action in the matter of providing, by suitable legislative enactments, ample and sufficient means :

1. For the establishment and maintenance of a National Sanitary Bureau.

2. For the establishment and perpetual maintenance of a National Veterinary College.

The farmers and breeders all over the land, in whose behalf this paper is written, will appreciate your favorable consideration of these matters. They have long and patiently suffered immense losses from the ravages of disease among their live stock, losses which could have been greatly lessened, if not altogether prevented, but for the apathy and neglect of the authorities whose

duty it is to watch over their interests and come to their rescue when need be.

Your favorable consideration of these matters will also materially assist in elevating the veterinary profession in the United States to the social position in society which it has long occupied among other civilized nations, to which it is justly entitled, and for the attainment of which the efforts of its most distinguished votaries in the United States have hitherto been in vain.

A CONTRIBUTION TO THE PATHOLOGY OF THE PULMONARY DISEASES OF THE HORSE.

By PROF. DR. SCHÜTZ,

PATHOLOGIST AND PATHOLOGICAL ANATOMIST OF THE ROYAL VETERINARY INSTITUTE, BERLIN.

Translated from the German by F. S. BILLINGS, of Boston.

(*Original in the Archiv fur Thierheilkunde, Band II, S.* 80.)

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(CONTINUED FROM PAGE 29.)

GELATINOUS INFILTRATION OF THE LUNGS.

This is a well known and very frequent condition of the lungs of horses affected with malleus, and I cheerfully concede that I have met with much difficulty in my endeavors to follow its development and to arrive at a satisfactory idea of the same. The parts of lungs thus infiltrated appear jelly-like, transparent, firmly filled with fluid, and extended to a degree conformable to a medium condition of inspiration. The fluid in the alveolæ of the diseased section of the lungs is viscid, and with the quantitative augmentation of the same, the changes upon the lungs become always more striking. Frequently large sections of the lungs are complicated, again several labuli, and frequently, also, only a labulus. The fluid contained in the alveolæ of the dense and airless parts of the lungs does not flow out on transverse section but first appears upon the cut surface by the application of pressure.

The contents of the alveolæ resemble mucus in the highest degree, and it must be our next task to decide whether it contains mucin or not. Should we able to discover mucin in the same, as the alveolæ do not secrete mucus, the idea would then receive confirmation, that the fluid in question is secreted by the bronchial mucosa, and only aspired into the alveolæ. I was however unable to find mucin in the fluid. I have had frequent opportunities to study the changes in question, and to accumulate great quantities of the fluid in question by the old, worn-out horses used for anatomical purposes at the Berlin Institute, but have never been able to find mucin in the same. The fluid is viscid and resembles the white of an egg. Cellular elements are also to be discovered in the fluid, most of which bear a strong resemblance to the white blood cells. I will here take no part in the discussion as to the derivation of the cells, except to remark that some of the cells are smaller than the white blood cells, while others are much larger and provided with several nuclei. The last are considered by Friedlander to be desquamated swollen epithelial cells from the alveolæ. This disease product, contained in the alveolæ, consists then of cells and a mucus-like fluid. This product is consequently movable, and to me the question: Why these masses were not expectorated, why do they remain filling up the alveolæ? became one of great interest. I must here remark that I cannot accept the nomenclature which Rindfleish has given to these changes, viz.: "Ædema, or inveterate œdema," and still less, when I, at the same time, consider the explanation of R., according to which the condition is dependant upon the exudation of blood serum from the vessels in consequence of mechanical disturbances of the circulation. We have here to do with an inflammatory process, as is demonstrated by the appearance of round cells in the fluid contained in the alveolæ. We have therefore to do with a so-called inflammatory ædema. Cohnheim has treated this subject better than anyone else, and his assertions are exactly conformable to the condition in point in the lungs, if we at the same time consider the circumstance under which the inflammatory processes in the lungs are developed. Laennec was the first to give the name "gelatinous infiltration" to these changes in the

lungs. Bruckmuller has also treated them as an inflammatory process, under the name "jelly-like infiltration" ("gallertige infiltration"). By these processes the fluid elements, to a less extent the cellular, *i. e.*, the white blood cells, leave the blood vessels; the cellular elements are probably desquamated alevolæ epithelium. The alveolic epithelium desquamates in the same manner as the epithelium of a mucosa by a catarrh. Buhl therefore speaks of a "*desquamative pneumonia*," and lays emphasis also on the inflammatory participation of the exudative processes. All surface processes, when bound with a plentiful secretion, are designated as *Catarrh*, and as the mass contained in the alveolæ is not alone made up of desquamated epithelial cells, but also of the products of inflammatory exudation, I consider the name "*Pneumonia Catarrhalis*" more appropriate. Virchow, Bartels, Ziemssen, Steffen and others also designate the inflammatory processes in the lungs in question by the same name.

Horses suffer almost exclusively on the catarrhalic pneumonia, however, in combination with certain changes which I intend to consider in another article. However, every catarrhalic pneumonia by horses does not produce a gelatinous infiltration of the lungs, and it remains for us to investigate the further conditions under which this infiltration develops.

Conditions to gelatinous infiltrations are:

1. Atelectasis of the pulmonary tissues, *i. e.*, the lungs must be atelectatic before the inflammatory process begins. Rindfleish has called attention to this anticipatory condition of the lungs. The atelectatic part has a more homogeneous character, and when the alveolæ of the same become filled with such a cellular fluid mass, it acquires the already mentioned gelatinous transparent character. The atelectatic parts become, on account of the inflammation, ædematous, and the masses contained in the alveolæ, fluid and cells, form a sort of substitution for the air which is wanting.

Atelectasis represents the lungs minus air; gelatinous infiltration rests upon the replacement of the lost air by an inflammatory exudate; it is atelectasis plus inflammatory ædema.

2. Further belongs to gelatinous infiltration, anæmia, or, in

other words, a condition favorable to the development of gelatinous infiltration is the white, pale atelectasis. This anæmia is the reason why the gelatinous infiltrated parts of the lungs are of a yellowish, or yellowish grey color. Rindfleisch looked upon this condition as the second stadium of his atelectatic ædema, and designated it as *inveterate ædema*. According to R., a hyperæmia develops itself in every atelectatic part in consequence of mechanical hindrance of the capillary circulation in such parts. This hyperæmia shall give occasion to the exudation of the blood serum in the alveolæ, and condition a change in the pulmonary tissues which he designates as splenisation. *Inveterate ædema* is only to be distinguished from *splenisation* by the presence of hyperæmic phenomena by the latter, and the anæmia of the former to the continued transudation of serous fluid in the alveolæ and the pressure of the distended alveolæ upon their circumscribing capillaries. I do not think, however, that either splenisation or gelatenous infiltration owe their genesis to a mere serous transudation. By both inflammatory processes are present in the atelectatic tissue, a catarrhalic pneumonia *the difference being that the inflamed atelectatic tissue by splenisation is hyperæmic, by gelatanous infiltration, anæmic.* The splenisated and gelatinous infiltrated parts of the lungs contain not alone serous fluid, but the product of an inflammatory process, *i. e.*, water which is rich in albuminous elements and round cells. Gelatinous infiltration (inveterate ædema, Rindfleisch) is therefore not the two stadium of splenisation, but the first as well as the last may appear idiopathically, and the question now interesting our attention is, why at one time gelatinous infiltration, and at another splenisation develops in the lungs.

I have at present only met with gelatinous infiltration by emaciated and worn-out horses, which were already ischæmic. It then makes no difference through what circumstances horses have become ischæmic, if from insufficient food, or from chronic disease processes. By such horses all parts are pale, also the atelectatic parts of the lungs, and the slight catarrhalic inflammation develops in the atelectatic parts, those changes which we designate as gelatinous infiltration. This grade of ischæmia present

regulates the paleness of the parts, and this paleness is not the second stadium of a protopathic process bound with hyperæmia and trans or exudation by which compression of the capillaries and consequent ischæmia is caused, but the ischæmia has existed from the beginning.

When, however, an atelectatic part is at the same time hyperæmic forins. by vital hypostosis, and in the hypostatic atelectatic parts the inflamatory processes in question develop, the condition produced is designated as splenization.

Gelatinous infiltration is, therefore, made up of atelectasis, *ischæmia* and a low grade of cellular infiltration in the alveolæ beginning of hepatisation. Splenization is made up of atelectasis, *hypostatic hyperæmia*, transudation and a low grade of cellular infiltration in the alveolæ.

The condition to the development of atelectasis and ischæmia are self-evidently present by emaciated horses. By such the respiration is weak, and they frequently suffer with bronchial catarrhs. Atelectasis will especially develop in such lungs, in which the atmospheric circulation is under normal conditions very poor, and in the inferior median and anterior section of one or the other or both lobes of the lungs. The extension of the atelectasis is dependant upon the extent of the bronchial catarrh, and again upon the grade of respiratory weakness present. As such horses are also ischæmic, the atelectatic parts of the lungs are also pale. We meet with atelectasis and ischæmia very frequently by horses suffering from malleus chronica. Such horses are weak and ischæmic, their respiration is insufficient, as proven by abductions they frequently suffer from a more or less extensive bronchial catarrh.

The weakness and emaciation of malleus diseased horses are conditioned by the influence of the local processes upon the general nourishmental condition of such animals. The lungs of horses diseased by malleus are predisposed to gelatinous infiltration, which at once develops when such animals become complicated by the processes of pneumonia catarrhalis. Sections of one or both lobes of the lungs suffer changes corresponding to the extension of the inflammatory processes. I do not think, how-

ever, that this gelatinous infiltration has anything to do with malleus; it is a collateral process, which exists along with those of malleus, and is also a frequent complication of the same. In this case we cannot assert that gelatinous infiltration represents a stadium of malleus, for I have met with the same changes by old emaciated horses, which were free from any intimation of malleus. Further proof in our favor is, that by horses diseased with malleus we are frequently only able to demonstrate the changes produced by the processes of the same upon small and circumscribed parts of the lungs, while gelatinous infiltration could be demonstrated in large sections of the lungs. By a considerable extension of the gelatinous infiltration very striking clinical phenomena often become apparent, which are conditioned by the, in general, locally limited pneumonia catarrhalis acuta. Observers have said that the processes of malleus have become acute, while in truth, we have before us nothing more than the complication of the processes of malleus with those of an acute pneumonia. In the clinic of our school there is, alas, a very abundant material for such observations, and horses diseased from malleus have frequently perished from this complication, by which intra-vitam notwithstanding the most circumspect investigation we were unable to unquestionably diagnosticate malleus. The lethal termination is not, however, produced by malleus, but by entirely unlooked for event. *When the animals have reclined for a long time upon one side anticipatory to death, the diseased part of the lungs upon the side in question will at the same time show the phenomena of hypostatic hyperæmia, and then we do not find gelatinous infiltration, but splenization in the deepest situated parts of the lungs.* Such parts are easily recognizable from the resemblance in appearance which they bear to the spleen.

Gelatinous infiltration and splenization come to pass therefore under uncertain circumstances, and both represent the beginning of an inflammatory process, or a cellular infiltration, that is, the alveoæ become entirely filled with round cells. A higher grade of irritation undoubtedly exists upon such places, and this full hepatization develops cet. par. in the vicinity of the bronchi.

For this we find a simple explanation; the catarrhalic pneumonia is always introduced by the bronchi, and consequently the most severe irritation must always take place in the vicinity of the same. Broncho-pneumonia has a centre-like (that is the processes are more severe in places) character noduli are developed, which sit in a gelatinous infiltrated or splenisated ground. The centra are white in the gelatinous infiltrated parts, and greyish red in the splenisated; they are dry and project beyond the general level of the sectioned service of such pulmonic tissues. I am convinced that those people who hold all possible nodulous centra in the lungs for "tubercles noduli" of malleus, will also look upon these broncho-pneumonic centra as having a specific character. I can, however, assure all such that such centra have nothing whatever to do with malleus, and can develop under the named conditions by horses entirely free from the complications of that disease. At other times we find entire lobuli or whole sections of the lungs in this condition of full cellular infiltration—hepatisation.

Pneumonia catarrhalis frequently develops by emaciated cachectic horses, such animals having a predisposition to this disease. I cannot, however, agree with Buhl when he attributes his *consecutive disquamative pneumonia* to a disease of the blood, *i. e.* to the reception of specific elements in the circulation, as, by carcinoma, caries, tuberculosis, etc. I have at least been unable to convince myself that this assumption is correct. The nourishmental conditions of a horse frequently become very poor by malleus, and with this general disturbance of the nourishment; by such horses as well as others, a predisposition to pneumonia becomes developed. I will not attempt to decide what conditions this predisposition, as anatomical reasons for the same in the pulmonary tissues are not, for the present at least, demonstratable. The lungs of such animals are vulnerable, and this physiological characteristic is not to be demonstrated anatomically. Pneumonia catarrhalis would under such circumstances be generated by a very slight irritation, which may come to pass by means of the respiratory tractus, but may not be introduced to the lungs by means of the blood. By a healthy horse such an irritation would

not suffice to develop an inflammatory process in the lungs, but it is sufficient when the predisposition is present, which we have been considering as due to emaciation, etc. I cannot look upon gelatinous infiltration in such cases, as the expression of a deuteropathic pneumonia; as by horses diseased with malleus, it stands in no direct relation with that disease. Pneumonia develops entirely independent of the latter, and by the side of the same, and in animals by which malleus is not present. Although scrophulous individuals become easily sick and are frequently subject to pneumonia, yet no pathologist would be inclined to designate such a pneumonia as deuteropathic; it is just as protopathic as every other pneumonia which develops by healthy individuals after violent irritation. Malleus predisposes the pulmonary tissues to gelatinous infiltration, because it causes the development of atelectasis and ischæmia, and it generates further a predisposition to inflammatory processes in the lungs. The last are, however, conditioned by simple actiological momenta, *i. e.*, such which in general cet. par. would be likely to produce inflammatory processes in the lungs. Pneumonia or gelatinous infiltration is here only a complication with malleus, and must not be classed with the special processes of the latter.

A second form of gelatinous infiltration stands, however, in intimate relation to the processes of malleus in the lungs. I cannot, however, in this place go into a minute discussion of malleus, but I will remark, that in every place, where the ulcerative processes of malleus exist, in most cases we are enabled to demonstrate the presence at the same time of simple inflammatory processes. For instance, we have upon the mucosa of the cavitates nasi, at the same time with the chancre (ulcus) of malleus, a simple catarrh upon that part of the mucosa complicated by the malleosic processes; in all places we may observe this combination of specific and simple inflammatory processes. The catarrhalic inflamed parts of the mucosa give the masses for expectoration. *I will not deny that the ulcers (chancres) do not also give a secrete, but their secretion is but insignificant; the greater part of the secretion is given by the simple catarrhalic diseased parts of the mucosa.* When the chancres (ulcers) of malleus penetrate deeply into the underlying

tissues along the larger part (in point of diameter) of the respiratory tractus, they produce *perichondritis*, and upon the smaller parts *peribronchitis* or a *broncho-pnemonia*. These profusely situated processes have nothing specific about them, being purely inflammatory in character. We may observe by the presence of malleosic processes in the bronchioli resp. the termination of the same, a simple inflammatory process in the neighboring alveolæ. This combination of specific and non-specific processes was first made clear by Vichow, and later also by Roloff and Bollinger. The malleosic neoplasmata are to be mostly found in the parietes of the bronchi, and, indeed, as Gerlach was the first to show, in the ends of the bronchioli, and by the exceeding delicacy of the parietes of the bronchioli, it is easy for the processes of irritation to extend themselves to the tissues in the vicinity. The adjoining alveolæ are, however, atelectatic, owing to the early obstruction of the lumina of the bronchi by the malleosic processes in the parietes of the same, and further to the muco-purulent secrete of the bronchial mucosa. The development of atelectasis may be accelerated by the concomitant presence of insufficient respiratory movements, as well as emaciated cachectic animals. The adjoining alveolæ are also ischæmic. This ischæmia is the consequence of the hyperplasia of the connective tissue of the adventitia of the vessels (capillary ramifications of the a. pulmonalis). We can demonstrate this hyperplasia regularly by malleus in the peri-bronchial and perivascular connective tissue, and the adventia of the vessels in question is especially strongly complicated. By the hyperplasia of the connective tissue (admentitia) the vessels become compressed, and those parts of the lungs ischæmia which derive their blood from the vessels in question. This paleness is especially marked when the animals in question are at the same time emaciated and ischæmic. For the same reasons the peri-bronchial alveolæ are atelectatic and ischæmie by horses complicated with malleosic bronchitis and peri-bronchitis. We may always be able to demonstrate around malleosic diseased bronchi, a circle of gelatinous infiltrated pulmonary tissue. This gelatinous infiltration is of a deuteropathic origin, and as it is of malleosic

origin, it may be designated as malleosic gelatinous infiltration (or gelatinous infiltration of glanders). The malleosic processes owe their genesis to a specific contagion, and it is therefore solely dependent on the intensity of the irritation, if the products are of a specific or simple inflammatory nature. Both forms of development are to be found in the course of malleus, and the malleosic gelatinous infiltration correspond to the simple slight conditions of irritation.

There is also a proto- and a deuteropathic gelatinous infiltration. Both represent inflammatory processes in atelectatic and ischæmic pulmonary tissue. I explain the genesis of the first by the complication of malleus with an acute pneumonia; and the last by the extension of the malleosic processes to the surroundings. As, however, the malleosic bronchial complications are generally multiplex present, and as in general many bronchi lying in close vicinity to each other are complicated concomitantly, so must the peri and inter-bronchial pulmonary tissue always show a state of gelatinous infiltration. I must not forget to mention that I have frequently found a condition of full hepatization—complete cellular infiltration of the alveolæ—in the alveolæ in the immediate vicinity of the malleosic diseased bronchi, as an indication of intensive irritation, and that the gelatinous infiltration was first apparent outside of these changes at a considerable distance from the bronchi. These processes must be classed with those of broncho-pneumonia, the actiology of which cannot easily escape us if we take into consideration to concomitantly existing malleosic bronchial complications.

Primary gelatinous infiltration is a more extended process, and develops independent of any existing malleosic complications of the pulmonary tissues. The connection with the changes of malleus fails by protopathic gelatinous infiltration, and it is the presence or absence of this connection which I must demand respect in fixing a deferential necroscopical diagnosis; for the primary inflammatory processes may (as the history of pneumonia teaches), present a lobular extension. With regard to the termination of gelatinous infiltration, only those forms can here interest us which have to do with the primary form of these

complications, as a consideration of a course of deuteropathic gelatinous infiltration cannot self-evidently come within the range of this paper.

Gelatinous infiltration is an inflammatory process in parts of the lungs which had a special predisposition to the same. *The extended forms of this complication will, as a rule, regularly make a lethal termination;* have we yet to do with a pneumonic process in cachectic individuals? Nevertheless, I have seen healing take place in such cases, where an entire anterior lobe of the lungs, or the median-inferior part of a lobe was diseased. The expectoration of the viscid and cellar mass in the alveolæ is impossible, because the lungs are not elastic enough, the bronchi obstructed, or the respiratory muscles too weak. Restitution results through fatty metamorphosis of the cells contained in the alveolæ. This process takes place, however, very gradually by horses, so that we are unable to demonstrate, at any one time, great quantities of fatty detritus. I have not yet seen by horses the termination described by Buhl as "*chronic fatty metamorphosis*," in which the alveolæ project from the gelatinous infiltrated tissue as small, yellowish, opaque points. This difference shows nothing more than that the fatty metamorphosis of the cells in the pulmonary alveolæ of man takes place almost at one time, while by horses it results gradually. By this transformation, there is present a fluid in the alveolæ much resembling milk, and which may be pressed out of the alveolæ. Microscopical investigation demonstrates the presence of numerous granulation (molecules) in this fluid. This fluid is now resorbed, and air may again enter the alveolæ, when chronic processes on the bronchi—bronchitis and peri-bronchitis—have not in the mean time taken place. Chronic bronchitis leads to sclerosis of the bronchial parietes. The thickness of the parietes of the bronchioli is, however, so insignificant, that induration of the lungs can only take place when the surrounding connective tissue is at the same time complicated. This connective tissue encloses the bronchi, arteries, and veins. It is the capsula communis, and the inflammatory processes taking place in the same is designated as *peri-bronchitis fibrosa*. Around the bronchi are formed thick, white masses

making the parietes of the same inflexible, so that they lose their ability to contract or distend. The consequence is that the mass secreted by the bronchial mucosa stagnates and suffers many changes—condensation, tyrosis, etc. Bronchio-stenosis develops on account of the shrinking of the hyperplastic connective tissue. The transverse section of a bronchus which has been complicated by peri-bronchitis fibrosa, presents the appearance of a small, white ring, the opening of which is, by many, scarcely to be recognized, which is filled with a mucous-like tyrosie, or other mass. Those parts of the lungs which stand in connection with bronchi thus changed, cannot contain any more air; they retract and remain useless. A permanent atrophy, or chronic atelectasis of the pulmonary tissues, is developed. The atelectatic tissue is characterized by its desiccated state. The chronic inflammatory processes may extend from the peri-bronchial to the alveolar tissue, and generates an induration of the lungs. The size of the indurative nodus corresponds to the extension of the indurative process. A lobulis, or several noduli, may be complicated thereby. Around these nodes, which are often colored by the horse, is to be seen atelectatic tissue.

Further, the pleura becomes sclerotic, and from the changed pleura we can follow fibrous threads, following the direction of the interlobular connective tissue in the lungs. This change hinders the extension of the parts of the lungs thus complicated, and causes shrinking of the same.

In other cases a chronic pneumonia develops (carnification), in which the alveolæ also participate, and the lung becomes completely impassable. This chronic pneumonia is by no means seldom by the horse, and leads to the formation of noduli of a white color and variable size, which may be easily complicated with those of malleus. Buhl designates this change as "pulmonary cirrhosis."

This slight contribution to the pathology of pulmonary disease is based on long-continued autopsie studies of my own—the results of which this is only a skeleton—which I have endeavored to place before my readers in a practical scientific form. The question of malleus I have only touched, where it seemed abso-

lutely necessary for my purpose, in discussing the question of gelatinous infiltration. (Schutz).

EDITORIAL.

PROGRESS OF VETERINARY SCIENCE IN THE UNITED STATES.

In the pages of this number of the REVIEW we publish the copy of an act which was passed by the Legislature of the State of New York, and that of a bill now before that honorable body for legislative action. The first relates to contagious diseases; the second is entitled an Act to regulate the practice of veterinary medicine and surgery in the State (New York).

If we go back to the conditions in which contagious and infectious diseases, and specially glanders and farcy, were dealt with but a few years ago, when animals thus affected were almost allowed to be exposed for sale, to travel through the streets of our city, to be sent across our ferries to neighboring States without danger or fear of being molested or interfered with; and when we look at the results to be reached by the passage of that act, veterinarians cannot but feel that a step towards progress has been made. For what branch of veterinary medicine is more important thanthat which is connected with general public health—than that of comparative sanitary medicine. And of course who else but they will be in the foremost ground to assist the civil authorities in getting rid of these diseased animals, specially now that by legislation, as in the city of New York, they are obliged to report to the health authorities any case of this kind which may come under their observation.

But if we look upon the second bill, which calls for a better regulation of the practice of veterinary medicine, oh, then, it seems to be almost a wonder that at last the veterinary profession should have been sufficiently appreciated by some to induce them to work in behalf of veterinary medicine and present that bill at Albany.

To the Society for the Prevention of Cruelty to Animals the

veterinary profession of the State of New York is indebted for the step thus taken—and it is but natural that it should come from that honorable body, for both the veterinarian and the officers of that society ought to work together.

The bill may not be as perfect as many would like it, but if passed, it would be of such benefit to the profession that even with its imperfections no reasonable veterinary practitioner could find umbrage to it. All no doubt will see the necessity of standing by it. As we go to press we are told that a deputation of physicians and *horse doctors* are to be received before the committee to which the bill was referred, to protest against it. But we do not feel anxious about their doings. First, we doubt if regular physicians, men of education, would dare to speak against this bill, for in so doing they would place themselves beyond the reach of professional scientific advancement; and if so-named *horse doctors* join them, we cannot feel afraid of their attempts. None in the profession, be it a graduate or a self-made man, can object to it; it asks for either nothing to which they can object; to the former it gives a protection to which his education entitles him, and to the *self-made man* it gives an opportunity of obtaining a qualification, a recognition of his ability and knowledge, which he cannot help but recognize as due to him, and which he deserves. It seems to us that all objections to the bill from such parties would be nothing but an acknowledgment of an unfit condition for their pretended ability and skill. But, no, we cannot admit that the bill will be opposed with any chance of success, and if it passes there is no doubt that other States will soon follow the example given by New York State, and then veterinary science will stand in America on a higher position, and will become protected better than in any other country in Europe.

If that is not progress, what is it?

VETERINARY SCHOOLS IN NORTH AMERICA.

Canada is much smaller than the United States. Its population is much smaller than ours. Its wealth in domestic animals cannot compare with ours, and still she is far ahead of us in the

establishment of that department which looks after her live stock.

Toronto, with her veterinary school, Montreal with her veterinary college, turn out yearly a number of graduates, whose life is to be devoted to the welfare of her horses, cattle, pigs, &c., and now Halifax comes and joins them by the opening of her veterinary institute. Three veterinary institutions! While in the United States, in our Republic which, with right, boasts of her standing in science, in art and in manufactures, &c., we have only .... two veterinary colleges, and both in the same State and in the same city. Montreal and Toronto are already old schools; they have done their proofs; they are to-day a success, which every year increases. Halifax, with her new elected board, comes now in the field and may prove a serious competitor. But in the United States we remain at a stand-still. Why is this? Is it because Canada is English, and that she takes from her mother country the respect and appreciation that veterinarians enjoy at home. Why should she grant annually to these schools funds to help them to not only carry on their work but to improve it?

To the student of political economy this will give an opportunity for serious thoughts and bring to his mind the necessity already so well pointed out in the papers of Messrs. Billings and Paaren, and also in the pages of the *Review*, viz., that of encouraging the establishment of a national veterinary school.

JURISPRUDENCE.

VETERINARY JURISPRUDENCE.

Read before the Montreal Veterinary Medical Association, by D. McEachran, F.R.C.V.S., President.

CONTINUED FROM PAGE 42, VOL. II.

"It would appear that under the English law no time is specified within which the action must be taken, if it can be proved that the unsoundness existed at the time of the sale. 'No length of

time elapsed after the sale will alter the nature of contracts originally false; though the not giving notice will be strong presumption against the buyer that the horse at the time of the sale, had not the defect complained of, and will make the proof of his part more difficult.' According to Dejean ('Action Redhibitoire') the time allowed by the French law to bring an action to return a horse for specific ophthalmia and epilepsy is thirty days, and nine days for all the other diseases which constitute unsoundness under their laws. The time to count from the time of delivery, and if the buyer neglects to take action within that time, the sale must hold good. The date of purchase, whether the animal is removed or not, unless the seller distinctly refuses to deliver it, is the date of delivery, and the risk is the purchaser's, even if he has not been paid for, or dies at his place, except he dies from any of the legal unsoundnesses. Our own common law establishes no certain number of days within which action has to be taken—1530—C. Code. 'The redhibitory action resulting from the obligations of warranty against latent defects must be brought with reasonable diligence, according to the nature of the defect, and the usage of the place where the sale was made;" thus leaving the question, as to time, to the judgment of the court, as to whether or not the purchaser has acted in the matter with due diligence.

Before leaving the subject of warranty I will read the following decision lately given in a horse case in England relative to the wording of a warranty: "The decision of the court in the case of 'Anthony vs. Halsted' deserves the attention of horse-owners, as teaching a practical lesson in the construction of written warranties.

"The plaintiff bought a horse of the defendant, and on payment of the price obtained a receipt and warranty in this form: 'Received, from C. Anthony, Esq., the sum of £60 for a black horse, rising five years. Quiet to ride and drive, and warranted sound up to this date, or subject to the opinion of a veterinary surgeon.' This horse was not quiet, so Mr. Anthony brought his action for breach of warranty in the Hereford County Court. The judge ruled that the warranty extended to quietness as well

as soundness, and the jury found a verdict for the plaintiff. Last week the Common Pleas Division ordered a new trial, the judges holding that the County Court judge had misconstrued the receipt, and that the allocation of the words showed the warranty to apply only to soundness. This construction of the document in question is in accordance with decisions given on former occasions when the identical point was in dispute. In 'Dickinson vs. Gapp,' tried in 1821, the warranty upon the breach of which the action was brought ran thus: 'Received £100 for a bay gelding, got by Cheshire Cheese; warranted sound.' The plaintiff proved that the horse was not by Cheshire Cheese, but Chief Justice Dallas held that the warranty was confined to soundness, and nonsuited the plaintiff. In 'Budd vs. Fairmaner' the receipt on the sale of a colt contained the following words: 'For a gray 4 years old colt warranted sound in every respect.' The colt turned out to be only three years old, but it was held that the soundness only was warranted, and the plaintiff was nonsuited. These decisions show clearly how written documents of the above kind will be construed in courts of law, and it cannot be contended that any violence is done to the language in which they are expressed. If the words mean anything, they mean just what the courts held them to mean, and nothing else. It may be urged that the three plaintiffs in the above actions would not have bought if the horses had not been stated respectively to be quiet, by a particular sire, and of a certain age.

The maxim, *expressum facit cessare tacitum*, will explain why these statesments were disregarded. Whatever conditions the word 'warranted' did not apply to could not be reckoned as integral parts of the contract of sale. In the above cases the sellers *represented* that the horses were quiet, of a certain breed, aud of a particular age, but they *warranted* they were sound. In order to hold a man liable if his representations turn out incorrect, it is necessary to show that he knew it was false at the time he made it. In selling horses it often happens that the owner has no personal knowledge of certain facts beyond what he was told when he bought; and if he sells on the same representation as he received, he is not liable, provided, of course, he

has not discovered the truth in the meantime. On the other hand, a seller is liable, if any part of the warranty turn out to be untrue, whether he knew of the defect or not, or even if he had no means of knowing. If a man choose to warrant quiet in harness a horse he has never driven, he must take the consequences of his own imprudence. It is at times difficult to distinguish warranty from representation. The rule of law is that every affirmation at the time of sale is a warranty, if it appears to have been so intended; but in the cases we have noticed this intention has been plainly omitted. And if he sells on the same representation as he received, he is not liable, provided, of course, he has not discovered the truth in the meantime. On the other hand, if any part of a warranty turns out to be false, the horse is returnable to the vendor."—*The Field.*

In a new country like this, where horses are so frequently changing hands, and where, I am sorry to say, dishonest practices and tricks of the trade are nearly as well known as in older and more pretentious countries, we as members of that profession who must act as the go-between, for evident reason require to have an intelligent knowledge of the law of sale and warranty. By such knowledge we will very often have it in our power to settle difficulties which otherwise would lead to troublesome and expensive lawsuits—for, as has been truthfully remarked, "Lawsuits originate less frequently in the positive dishonesty and bad faith of the litigants than in their gross misconception of each other's rights and liabilities." The cumbersome, tedious, and expensive legal processes which clog the machinery in all horse cases in this country are a disgrace to this advanced age, and in the majority of cases, a person would be far better off to put up with the loss incurred by the fraud, than spend time and money in a vexatious and uncertain litigation—nor is the working of the law of warranty in England much better. Thus in "Sydney's Book of the Horse," Col. Kingscote, C.B.M.P., Equerry to H.R.H. the Prince of Wales, who has the management of H.R.H.'s studs, is reported to have said that "the working of the English law of warranty very much discouraged horse-breeding among plain farmers;" for instance, he says, "A man buys sev-

eral horses at a fair and takes a warranty; when he gets them to London, if he thinks he has made a bad bargain in any one of them —given too much money for the horse—he gets a man to examine him and find some defect he construes into unsoundness. He then sends a certificate down to the person in the country from whom he bought the horse. The breeder, a farmer, writes back to say 'he was perfectly sound when he left him,' the correspondence goes on, and the dealer writes to say he shall send the horse back on such a day or else send him to be sold. Frequently, to save expense, and frightened at the cost of a lawsuit, the farmer says, 'if you will keep the horse, you can have him for half the original price.' There are hundreds of these cases." The same author, on the authority of Mr. E. Green, M.P., relates a case in which a London dealer bought a horse in Lincoln fair and gave a high price for him. The usual letter came down, saying the horse was unsound. The whole county backed their friend, and the farmer defended the action. They employed a detective to worm out the secrets of the dealer's place, and found that he had made £1500 by letters of this kind, because many men, rather than have any bother, would send him £20 or £30. The dishonesty of the horsedealer is proverbial, even from the earliest times; an old writer says, "as mortar sticketh between stones, so sticketh fraud between buyers and sellers of horses." Butler, the author of Hudibras, says: "A horse-dealer is one who reads horses, and understands all the virtues and vices of the whole species. He makes his first application to a horse, as some lovers do to a mistress, with special regard to eyes and legs. He has more ways to hide decays in horse-flesh than women have decays in faces, with which oaths and lies are the most common accompaniments. He understands the chronology of a horse's mouth most critically, and will find out the year of his nativity by it as critically as if he had been at the mare's labor that bore him; and he is a strict observer of saints' days, only for the fairs that are kept on them." I quite agree with Nimrod, who says, "there is a good deal to be said in mitigation of the general opinion, that an honest horse-dealer is a character written in the dust;" and there is a saying amongst the fraternity that helps to

bear them out: "If one buy the *devil*," they say, "we must sell the devil." I also agree with Prof. Gamgee: "It is a mistake to suppose that all the sharp practice is on one side," he says, "I have as high an opinion of the honesty of the better class of horse-dealers, as of gentlemen who habitually buy and sell horses. It is a wonderful fact, but yet it is a fact, that the horse, next to man, one of the noblest objects in creation, appears to have a tendency to corrupt almost all who deal in him."

"A horse-dealer on his defence, goes into a court of justice, like a dog, with a bad name, by the influence of which, coupled with the want of practical knowledge in the jury, and perhaps the prejudices of all parties, he does not always obtain justice. It is generally taken for granted that he must have known of the unsoundness or vice in dispute, which circumstance, coupled with those before mentioned, and the contradictory statements of ignorant and incompetent witnesses, operate strongly against him.

It too often happens, however, that a mass of perjury on one side or another, is produced in court, disgusting to all persons of decent character, and such as could not well be surpassed under the dispensation of the dark ages, which assumed to deprive oaths of their validity, and sin of its guilt."

[TO BE CONTINUED.]

REPORTS OF CASES.

SINGULAR INJURY TO A HORSE.

By Robert Wood, V.S., of Lowell, Mass.

In the summer of 1869, while Lent's Circus Company were performing in Lowell, at an evening performance on Monday, while Mr. Cook was riding in his four-horses act, one of the leaders fell, and the others in consequence tumbled over him. The leader was, to all appearances, badly injured, being, for some minutes at least, unable to rise; but being assisted by the strong arms usually identified with a circus, he was placed upon his feet

and then taken from the ring, and shortly after to the stable at the Washington House, about one hundred rods distant, and, as I am informed, walked pretty well. Shortly after reaching the box stall in the stable, he laid down, and never afterwards was able to rise. The proprietors, thinking the horse permanently injured, gave him to the hostler, with the understanding that if he recovered they were to have him by paying handsomely for him. The parties having the care of him considered him injured in the loins, and treated him accordingly. The next morning, however, the hostler consulted me, and upon making a careful examination I found there was no injury to the back, and as the horse at this time was unable to raise his head but a few inches from the floor, although able to eat, I continued my search for the trouble, and soon discovered a slight swelling and tenderness over the third cervical vertebra, and concluding this to be the seat of injury, treated the case as one of severe injury to these parts. But from the appearance of the animal at this time, I certainly did not anticipate such an injury as it subsequently proved to be. From this time until the Saturday morning following, the treatment consisted of fomentations by blankets wrung out of a hot decoction of hops, our patient eating grain food and taking a fair quantity of water from a bottle. With being turned over occasionally during this time, he seemed quite comfortable, and having lived so long I certainly prognosed ultimate recovery. Not under the circumstances before described, could I entertain the idea of fracture, only as a possibility. On visiting my patient early Saturday morning, I found him to all appearances as well as the night before: but on returning to the stable at 9 A. M., I found the horse dead. The hostler said he left him eating, at seven o'clock, and when he returned at 7:30 he was dead, and had died apparently without a struggle. We made an autopsy, and found a transverse fracture of the third cervical vertebræ. I accounted for his sudden death from an effort to move sufficient to displace the broken bone, which had not taken place earlier. Extravasated blood was found around the seat of injury, as well as in the spinal channel.

LEGISLATION.

An Act to Regulate the Practice of Veterinary Medicine and Surgery in the State.

The People of the State of New York, represented in Senate and Assembly, do enact as follows:

Section 1.—The Governor of this State shall annually appoint a Board of State Examiners and Censors in Veterinary Medicine and Surgery. Such Board shall consist of five members; three of whom shall be graduates of a duly incorporated veterinary college, or veterinary department of a medical college or university, and two of whom shall be physicians or surgeons duly licensed to practice and members of a county medical society in this State.

Section 2.—Every person who shall be appointed a member of such Board shall without delay file with the Secretary of State the certificate or notice of his appointment, together with an endorsement in writing thereon, signed by him, of his acceptance thereof.

Section 3.—Such Board shall meet at least three times during the year, at such times and places as it shall designate. Notice of the time and place of each meeting shall be published in the State newspaper at least two weeks previous thereto. Three members shall constitute a quorum for the transaction of business.

Section 4.—Such Board is authorized to grant licenses to practice veterinary medicine and surgery in this State to such persons who shall apply therefor, upon their passing an examination to the satisfaction of a majority of such Board upon the subjects of anatomy and physiology of the domestic animals, chemistry, practice of veterinary medicine, veterinary surgery, veterinary obstetrics, veterinary materia medica, pharmacy and therapeutics. Such Board shall keep accurate minutes in writing of each examination, with a separate written opinion of each examiner as to the acquirements and merits of each candidate.

Section 5.—Every candidate, prior to his examination, as

above provided, shall pay to said Board the sum of five dollars, to be equally divided between the members of such Board, who shall receive no other or further compensation for their services.

SECTION 6.—Every such candidate, after submitting to such examination to the satisfaction of such Board, or a majority of the members thereof by whom such examination was made, shall be entitled to receive a license from such Board to practice veterinary medicine and surgery within this State, which license, when granted, shall continue until revoked, as hereinafter provided, and shall be in writing duly signed by the members of the Board approving thereof, the signatures whereof shall be duly attested by the Secretary of State under his seal. The Secretary of State shall also keep an accurate record of all persons to whom licenses are issued, pursuant to the provisions of this Act and of all revocations thereof, with the dates thereof respectively.

SECTION 7.—Every person possessed of a diploma, issued to him in due course by a duly chartered or incorporated university or veterinary college, or veterinary department of a university of medicine or surgery, upon exhibiting to such Board such diploma properly authenticated, shall be entitled to the license provided by this Act. Such Board may at any time require any person practicing, who shall practice veterinary medicine or surgery in this State, to satisfy it that he is legally authorized thereto; and it shall keep in a proper book, to be by it for that purpose provided, a record of all such requisitions, the result thereof, and its action thereon.

SECTION 8.—Any license granted by such Board, pursuant to the provisions of this Act, may be revoked by it at any time or by the Supreme Court of this State, upon petition and notice, and for cause shown.

SECTION 9.—Any person who shall practice veterinary medicine or surgery in this State, who shall not at the time be duly licensed pursuant to the provisions of this Act, shall be guilty of a misdemeanor.

SECTION 10.—This Act shall take effect on the first day of August, 1878.

LAWS OF 1878, CHAPTER 28.

AN ACT RELATING TO DISEASED ANIMALS.

Passed February 23d, 1878, three-fifths being present.

The People of the State of New York, represented in Senate and Assembly, do enact as follows:

SECTION 1.—Any person who shall knowingly sell, or offer for sale, or use, or expose, or who shall cause, or procure to be sold, or offered for sale, or used, or to be exposed, any horse or other animal having the disease known as glanders, or farcy, or any other contagious or infectious disease, by such person known to be dangerous to human life, or which shall be diseased past recovery, shall be guilty of a misdemeanor.

SECTION 2.—Every animal having glanders, or farcy, shall at once be deprived of life by the owner, or person having charge thereof, upon discovery or knowledge of its condition; and any such owner or person omitting or refusing to comply with the provisions of this Section shall be guilty of a misdemeanor.

SECTION 3.—This Act shall take effect immediately.

ONTARIO VETERINARY COLLEGE.

ANNUAL EXERCISES.

The closing of the session at the Ontario Veterinary College, took place in the beginning of April.

The Board of Examiners consisted of practitioners of human and veterinary medicine in Canada. The following gentlemen were awarded diplomas:

S. G. Anderson, Tottenham; L. P. Chase, Peoria, Illinois; J. R. Deacon, London; W. F. Deer, Wooster, Ohio; G. Falls, Ottawa; S. Haggard, Lexington, Ky.; C. Hand, Alliston, Ont.; H. Heckenberger, Catasauqua, Penn.; G. P. Hinman, Cobourg, Ont.; J. Humphries, Tucknow, Penn.; W. Jex, Brantford; A. Moore, Guelph; J. McKerracher, Highgate; J. V. Newton, Barrie; S. P. Palmer, Toronto; B. A. Pierce, Creston, Illinois;

H. Sutterby, Seneca Falls, N. Y.; A. N. Smeall, Toronto; E. R. Smithers, St. Louis, Mo.; A. R. Stephenson, Cobourg; J. Waddell, Seneca; L. E. Wheat, Burdett, N. Y.; G. Theobald, Feeswater.

The following prizes were given:

Junior Class—*Chemistry*, 1st Prize—W. Rose. Honors—S. Foelker, J. Gemmel, F. C. Grenside. *Anatomy*—Silver Medal presented by the Agricultural and Arts Association—S. Foelker. 2d, E. Prentice; 3d, J. C. Rutherford. Honors—T. Fisher, J. Frink, F. C. Grenside, W. Rose.

Senior Class—*Breeding and Management of Stock*, 1st Prize, given by Hon. S. C. Wood, Commissioner of Agriculture—S. P. Palmer. 2d and 3d, presented by the Agriculture and Arts Association—G. P. Hinman, J. V. Newton.

Pathology—Silver Medal presented by the Ontario Veterinary Medical Association—G. P. Hinman. 2d, W. Jex; 3d, H. Sutterby and S. P. Palmer. Equal Honors—L. P. Chase, F. W. Derr, G. Falls, J. Humphries, J. V. Newton.

Physiology—1st Prize, L. P. Palmer. Honors—G. Falls, W. Jex.

Chemistry—1st Prize, H. Sutterby. Honors—G. P. Hinman, J. Humphries, S. P. Palmer, E. Smithers, L. E. Wheat.

Entozoa—1st Prize, J. V. Newton. Honors—S. G. Anderson, G. P. Hinman, A. N. Smeall, H. Sutterby.

Materia Medica—1st Prize, S. P. Palmer; 2d, W. Jex and G. P. Hinman. Equal Honors—J. Humphries, E. Smithers, H. Sutterby.

Anatomy—Silver Medal presented by the Agricultural and Arts Association—H. Sutterby; 2d, W. Jex; 3d, S. P. Palmer. Honors—G. Falls, G. P. Hinman, J. N. Newton. Gold Medal given by the Ontario Veterinary Medical Association for the best general examination—W. Jex.

MEETINGS OF SOCIETIES.

NEW YORK STATE VETERINARY SOCIETY

The regular meeting of this Society for March was held on the evening of the 13th, in the Cooper Institute, Eighth street

and Fourth avenue, New York City, with the President, Dr. Robertson, in the chair. Members present were Drs. Liautard, Lockhart, McLean, Burden, Bell, Hopkins, E. Nostrand, P. Nostrand, Coates and Holcombe. On motion, the Secretary was ordered to strike from the roll the names of delinquent members. Dr. Samuel S. Field, William H. Wray and Alvord H. Rose were proposed for members by Dr. Holcombe. Mr. L. McLean, of Brooklyn, read a paper on contagious pleura-pneumonia, which excited a lengthy and spirited discussion between Drs. Liautard, Robertson, Lockhart, Bell, Holcombe and the essayist. Dr. Liautard, asked if, in opposition to the opinion of the essayist, the prophylactic treatment of inoculation would not be attended with better results than some authors will concede, and better than most practitioners are taught to expect. He thought that there was a probability of the great fatality attending the essayist's experiments, being due to septicæmic poisoning instead of the induced pleura-pneumonia. Dr. Robertson believed that the inoculation was the true method of treatment to adopt when we consider the limited mortality attending this operation as practised on the continent. He believed that the disease would not be communicated after the febrile stage had passed, and also that in inoculation it was necessary there should be the usual local manifestations of the disease to render the animal proof against infection. Dr. Lockhart doubted the efficacy of inoculation, especially in Scotland, and thought "stamping out" the most effective treatment. L. T. Bell questioned the possibility of determining by a *post mortem* examination, as claimed by the essayist, whether a recovered case had been one of sporadic or contagious pleurpneumonia. A. A. Holcombe called attention to a recent outbreak of this disease in the southern portion of Hunterdon County, N. J., and cited the fact that pleuro-pneumonia is rapidly spreading over that State, and he thought the time was rapidly coming when we will be called upon to prevent its further progress. He believed from his experience of an outbreak in Somerset County, N. J., during the summer of 1874, that cases of *apparent* recovery were capable of communicating the disease a considerable time after the local symptoms had subsided, and

asked "In inoculation, may not a blood poisoning sufficient for protection against further infection be induced without having any perceptible local manifestations?"

L. McLean thought the pulmonic and pleuritic lesions were an essential—an invariable accompaniment of inoculation, for he had lost all cases upon which he had experimented. He believed no animal would thrive after having the disease, unless the seeds of the disease had entirely left the body.

A vote of thanks being tendered the essayist for his interesting paper, and Dr. Liautard appointed to read at the next meeting a paper on "Inoculation," the meeting adjourned to meet at the lecture room of the American Veterinary College, April 11th, at eight o'clock.

J. D. Hopkins, D.V.S.
Secretary.

The regular monthly meeting of the New York State Veterinary Society, was held at the American Veterinary College, Thursday, April 11th, 1878, at 8 P. M. The President, Dr. Robertson, occupied the chair. Members present: Messrs. Liautard, Lockhart, Burden, Coates, Holcombe, McLean, Fields, and Hopkins. Minutes of the last meeting were read and adopted.

The following gentlemen were elected to membership: S. S. Field, D.V.S.; W. H. Ray, D.V.S.; and Alvord H. Rose, D.V.S.

Dr. Lockhart proposed for membership Edward Heard, V.S., graduate of Edinburgh.

It was moved and seconded, that no vote of thanks shall be tendered an essayist until after the discussion. Moved and seconded that the members of this Society exert themselves to induce all *regular* veterinary surgeons to join this Society. Carried.

Dr. Liautard read a paper giving the statistics of continental veterinarians during a series of experiments on inoculation of cattle to prevent the spreading of epizootic contagious pleuro-pneumonia. After stating first, that he did not wish to be understood to be looked upon as the champion of inoculation, as he never had an opportunity to test it by himself, he could not, however, ignore the magnificent results obtained in Europe in late years. Giving

the definition of the word inoculation, and the results of the operation, with the description of the lesions found in animals who had died from it, proving that in many instances lesions were found which proved undoubtedly the general effect upon the whole organism, the Doctor passed in review the statistics obtained in France, Belgium, Holland, Germany, and Italy, and in recapitulating said, "If we recapitulate, we find that out of 22,348 inoculations with known results, 5,476 gave no symptoms, or 24½ per cent.; and 16,872 presented symptoms, or 75 per cent. We can then say that three-quarters of the inoculations were successful." In relating the sequelæ following these operations, Dr. L. remarked, that out of the number of known results, 1,582 lost their tails, 53 had gangrenous swelling, 490 died, and that 2,214 took the disease afterwards.* The conclusions of the paper were, that prophylactic inoculation was not to be used in stables where the disease did not yet exist, and generally in a country where it had just been introduced; that it was the duty of the sanitarian to defend these prophylactic inoculations, and if they were found useful the animals operated ought to be submitted to the same quarantine as those of a stable already infected; that the inoculation was powerless to stop the disease in incubation, and would not prevent the natural course of the disease, but that it created an immunity for animals which would have been affected only at a later period; and that if it was to be put in practice, it should be performed entirely and only by men of intelligence and of education, and if possible only by veterinarians.

The discussion following was kept up by most of the members present, and after a vote of thanks passed for the author of the paper of the evening, the chair having appointed Dr. Holcombe as the essayest of the next meeting, the Association adjourned.

J. D. HOPKINS, *Secretary.*

UNITED STATES VETERINARY MEDICAL ASSOCIATION.

The regular semi-annual meeting of this Association was held at Young's Hotel, Boston, Mass., Tuesday, March 19th, 1878.

* Figures taken from Zundel.

C. P. Lyman, President, called the meeting to order at 11.30 A. M., with the following members present: W. Bryden, J. B. Cosgrove, J. C. Corlies, C. Colburn, O. H. Flagg, A. A. Holcombe, C. H. Hall, A. Liautard, M.D., A. Lockhart, C. H. Peabody, J. L. Robertson, M.D., W. Saunders, R. J. Saunders, J. S. Saunders, E. F. Thayer, M.D., T. S. Very, and R. W. Wood.

The Committee on Intelligence and Education reported progress in their endeavors to call a congress of the teachers of veterinary medicine in America, and received instruction from the Association as to their course in the future.

Prof. D. McEachran, F.R.C.V.S., of the Montreal Veterinary College, was elected to honorary membership; J. A. Brackin, V.S., of Pittsfield, Mass., J. C. Force, D.V.S., Newark, N. J., J. C. Malloy, V.S., Chelsea, Mass., and J. C. Fogg, V.S., Boston, Mass., were elected to membership.

Dr. Liautard, as editor, reported the condition of the AMERICAN VETERINARY REVIEW as highly satisfactory, and was granted his request to increase its size by the addition of ten more pages, and at the same time to reduce the subscription price to four dollars.

W. Bryden then read an interesting paper on "Spavin," which was discussed at length by Drs. Wood, Thayer, Liautard, Very, Lockhart, Boyden, and others. Dr. Liautard read a paper on "Intestitial Injections," by J. C. Myers, Jr., Cincinnati, Ohio, which was also commented upon by several members. Communications from B. McInnes, Charleston, S. C., and R. Laidlaw, Albany, N. Y., were read by the Secretary.

Drs. Wood, Liautard, Thayer, Cosgrove, and others reported numerous and interesting cases. At 5 o'clock P. M. the meeting adjourned, and the members were invited to the dining room, where one of those matchless dinners, always provided by the Boston members, awaited them.

A. A. HOLCOMBE, *Sec.*

COMMUNICATIONS RECEIVED.

C. B. Michener, Pennsylvania; G. Duncan, Canada; A.

Smith, Canada; E. Mink, Rochester; F. S. Billings, Berlin; W. Bryden, Mass.

EXCHANGES AND JOURNALS RECEIVED.

Live Stock Journal, Ill.; Hospital Gazette, N. Y.; Turf, Field and Farm, N. Y.; Daily Citizen, Canada; Massachusetts Ploughman; Medical Record, N. Y.; Mouvement Medical, Paris; Journal de L'Agriculture, Paris; Archives Veterinaires, Alfort, France; Country Gentleman, N. Y.; Scientific American, N. Y.; Zeitschrift der Thiermedicin, Munchen; Jahresbericht der Thierortnie Schule, Hanover.

PAPERS RECEIVED.

D. McEachran, on Veterinary Jurisprudence; C. B. Michener, Pleuro-Pneumonia; F. S. Billings, on the Development of Comparative Medicine.